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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,498	12/11/2003	Matthew J. Hunton	PWV1.PAU.64	9199

7590 05/27/2005

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EXAMINER


MOTTOLA, STEVEN J

ART UNIT PAPER NUMBER

2817

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/733,498	Applicant(s) HUNTON ET AL. 	
	Examiner Steven J. Mottola	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32 is/are allowed.
- 6) ☒ Claim(s) 31, 33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-34 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/8/07</u> . | 6) <input type="checkbox"/> Other: _____ |

The applicant's election of claims 31-34 is acknowledged; since no arguments have been presented, the election is presumed to be without traverse. A complete response to the present Office action should include cancellation of nonelected claims 1-30 in lieu of such arguments.

Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is no antecedent basis for "the second control loop" of lines 8-9 of the claim.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 33-34 are rejected under 35 U.S.C. 102(e) as being anticipated by Ly. The applicant is familiar with this reference. Referring to fig. 3, a feedforward amplifier arrangement is disclosed either loop of which may be read as the claimed control loop

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including first and second signal paths with a delay mismatch, an input and an output as referred to in the preamble of both claims. Treating the body of claim 33 first, the pilot is detected at the output (48) by level detector 100 meeting the detecting step of the claim; its output is fed to a processor 82 which adjusts the phase in one signal path of each loop meeting the adjusting step of the claim. The adjusting is controlled so that there are loop phase (and amplitude) 'tuning points' TP1,TP2 that are associated with a reduced pilot amplitude which may be read as the minimum value of the claim but that the loop phase (and amplitude) adjustment values are averaged. This will inherently result in the pilot amplitude being offset from the minimum above because the loop phase and amplitude will be offset from the values at the tuning points TP1,TP2 that would result in the reduced pilot level above, meeting the controlling step of the claim. See fig. 7 and col. 11, line 51 to col. 12, line 36. Treating the body of claim 34, as shown in fig. 3 of Ly a pilot is injected before the main amp 12 by a pilot frequency synthesizer 89 with a frequency offset for the center of the RF signal bandwidth as shown in fig. 1 of Ly, thus meeting the injecting step of the claim. The pilot is detected at the output (48) by level detector 100 as before meeting the detecting step. The phase of both loops is controlled by a processor 82 as above including in the distortion cancellation loop of Ly (with phase and amplitude adjuster 42) to cancel distortion at the RF frequency which is offset from the pilot, the pilot frequencies being symmetrical about the center of the RF signal bandwidth as is apparent from fig. 1 of Ly, meeting the controlling step of the claim.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ly in view of Lieu.

Ly discloses in fig. 3 for instance a processor 82 that adaptively controls the loops of a feedforward amplifier system as described previously and includes a local oscillator 95, mixer 98, filters 97,99 etc. that may be read on a pilot receiver. The processor 82 is coupled to the receiving circuitry and programmed with an algorithm as shown in fig. 7 of Ly so as to adjust the settings loop phase (and amplitude) adjusters 20,42 based on the received pilot as described above. The difference between claim and Ly is "a cost function having a floor value and penalty..." claimed. However, an control loop phase and/or gain adjusting function that has a minimum (or floor) value

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and resets the adjustment increment or step size as a ('penalty') is known from Lieu.

Refer to the abstract of Lieu. The gain (amplitude) and phase adjusters of a feedforward loop are controlled from a minimum value which may be read as the claimed floor and the adjustment step is changed if the desired result is not achieved which may be read on the claimed penalty. The penalty is associated with direction as is apparent from fig. 4 for instance where I refers to 'increase' and D refers to 'decrease'. It would have been obvious to utilize such a routine (which may be read as the cost function claimed) with the processor 82 of Ly since like Ly, Lieu is directed to controlling the phase and amplitude adjusters in feedforward loops so as to minimize distortion.

Claim 32 is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Mottola whose telephone number is 571-272-1766. The examiner can normally be reached on M-Th from 8 to 5. The examiner can also be reached on alternate Fridays from 8 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal, can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

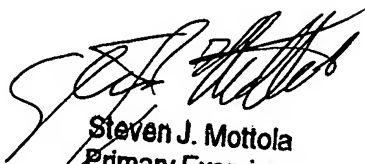
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven J. Mottola
Primary Examiner